

June 23, 2021

Mr. David Albright
Manager, Groundwater Protection Section
USEPA Region 9 (WTR-4-2)
75 Hawthorne St
San Francisco, CA 94105

Subject: Underground Injection Control (UIC) Permit Number R9UIC-AZ3FY11-1
Monthly Update for AL/AQL Exceedances at Supplemental Monitoring Well M59-O

Dear Mr. Albright:

Florence Copper is providing this monthly update of supplemental monitoring well M59-O alert level (AL) and/or Aquifer Quality Limit (AQL) exceedances under Underground Injection Control (UIC) Permit Number R9UIC-AZ3FY11-1 (Permit).

Florence Copper has been voluntarily monitoring M59-O monthly for the parameters listed in Table 1, and previously submitted a 30-day report on May 6, 2021. The Table below has been updated to include the most recent laboratory results from the monthly sample collected on May 19, 2021 and received on June 11, 2021.

Table 1. M59-O Sampling Results

Parameter	AL	AQL	12/28/2020	1/18/2021	2/22/2021	3/23/2021	4/14/2021	5/19/2021
Magnesium (mg/L)	23	--	57.2	63.1	26.5	19.1	19.8	65.6
Sulfate (mg/L)	202	--	865	960	383	228	249	999
Total dissolved solids (TDS) (mg/L)	854	--	1,860	1800	970	762	780	2010
Total Uranium (mg/L)	0.0052	--	0.037	0.038	0.0088	0.003	0.0038	0.0096
Adjusted gross alpha (pCi/L)	15.8	15.8	73.5 ± 3.7	35.4 ± 2.5	17.9±1.4	18.8±1.5	18.1±1.2	49.1±2.1
Radium 226+228 (pCi/L)	6.9	6.9	19.8 ± 0.8	22.0 ± 0.8	6.2±0.5	7.0±0.6	10.9±0.7	18.0±0.8
Gross beta (pCi/L)	16	16	43.2±2.7	52.7±3.0	NA	NA	19.6±1.9	49.4±2.1

BOLD values are exceedances of AL and/or AQL

NA: not analyzed

Florence Copper has instituted the following mitigation measures in May and June:

- Redeveloped recovery well R-02 to improve pumping efficiency;
- Continued constant pumping of observation well O-02;
- Resampled M59-O on June 1, 2021 (results pending);
- Conducted a conductivity profile at varying depths (see below); and
- Installed a submersible pump and began pumping M59-O at approximately 10 gpm .

Conductivities at Depth

Working with an independent contractor, Florence Copper set a submersible pump in supplemental monitoring well M59-O at three separate depths and sampled for conductivity at each level. Specific conductance was measured after initial purging of three casing volumes water at depths of 540-, 740- and 960-feet. Conductivities varied by only 2 percent over three days and three depths (Table 2). These results helped determine the depth to set the submersible pump.

Table 2. Conductivities at depth in M59-O

Date	Time	Depth (ft)	Conductivity ($\mu\text{S}/\text{cm}$)
6/14/2021	07:11	540	3176
6/14/2021	13:31	740	3228
6/15/2021	12:20	960	3264
6/16/2021 ¹	08:33	960	3249

¹ Sample collected for laboratory analysis.

Florence Copper will continue monthly sampling of supplemental monitoring well M59-O for parameters which exceeded the ALs and AQLs, and will report these results monthly to EPA until all concentrations are below the ALs and AQLs.

Please feel free to contact me should you have any questions or comments.

Sincerely,
Florence Copper, Inc.



Brent Berg
General Manager

Cc: Nancy Rumrill, EPA Region 9
Maribeth Greenslade, ADEQ